

WHAT IS CLAIMED IS

1. A method for separating an image signal into a set of image planes in accordance with a control signal, the method comprising the operations of:
 - (a) sub-sampling an image signal by a programmable amount;
 - (b) receiving the control signal and producing a selector signal, via a selector module;
 - (c) receiving the selector signal and producing a decision signal, via an edge processing module; and
 - (d) receiving the sub-sampled image signal and the decision signal, and outputting a foreground signal and a background signal, via a foreground/background separation module, a representation of the current pixel of the image signal being included in at least one of the foreground signal and the background signal in accordance with the decision signal.
2. The method of Claim 1 wherein operation (c) further comprises:
receiving the foreground signal and the background signal;
filling undefined pixels in the foreground and background signals with values computed so as to substantially prevent artifacts and to facilitate good compression ratio, using a cleanup module; and
outputting a final foreground signal and a final background signal.
3. The method of Claim 2 wherein the operation of filling comprises:
extending content of defined pixels in each of the foreground and background signals to neighboring undefined pixels by filling neighboring undefined pixels with diluted foreground and background values, respectively, using a dilate module;
averaging non-zero content of the diluted foreground and background values over minimum coded unit blocks and outputting averaged block values, using a block average module; and

filling any remaining undefined pixels with the averaged block values, using a fill module.

4. A system for separating an image signal into a set of image planes in accordance with a control signal, the system comprising:

a selector module receiving the control signal and producing a selector signal;

an edge processing module receiving the selector signal and producing a decision signal;

a foreground/background separation module receiving the image signal and the decision signal, and outputting a foreground signal and a background signal, a representation of the current pixel of the image signal being included in at least one of the foreground signal and the background signal in accordance with the decision signal.

5. The system of Claim 4 wherein the separation module further comprises:

a cleanup module receiving the foreground signal and the background signal, filling undefined pixels in the foreground and background signals with values computed so as to substantially prevent compression ringing artifacts and to facilitate good compression ratio, and outputting a final foreground signal and a final background signal.

6. The system of Claim 5 wherein the cleanup module comprises:

a dilate module extending content of defined pixels in each of the foreground and background signals to neighboring undefined pixels by filling neighboring undefined pixels with diluted foreground and background values, respectively;

a block average module averaging non-zero content of the diluted foreground and background values over minimum coded unit blocks and outputting averaged block values; and

a fill module filling any remaining undefined pixels with the averaged block values.

7. An article of manufacture comprising:

a machine usable medium having program code embedded therein, the program code being used for separating an image signal into a set of image planes in accordance with a control signal, the program code comprising:

(a) machine readable code to receive and process the control signal, and produce a selector signal;

(b) machine readable code to receive the selector signal and produce a decision signal; and

(c) machine readable code to receive and process the image signal and the decision signal, and outputs a foreground signal and a background signal, a representation of the current pixel of the image signal being included in at least one of the foreground signal and the background signal in accordance with the decision signal.

8. The article of manufacture of Claim 7 wherein the machine readable code (c) further comprises:

machine readable code to receive the foreground signal and the background signal;

machine readable code to fill undefined pixels in the foreground and background signals with values computed so as to substantially prevent artifacts and to facilitate good compression ratio; and

machine readable code to output a final foreground signal and a final background signal.

9. The article of manufacture of Claim 8 wherein the machine readable code to fill undefined pixels comprises:

machine readable code to extend content of defined pixels in each of the foreground and background signals to neighboring undefined pixels by filling neighboring undefined pixels with diluted foreground and background values, respectively;

machine readable code to average non-zero content of the diluted foreground and background values over minimum coded unit blocks and to output averaged block values; and

machine readable code to fill any remaining undefined pixels with the averaged block values.

10. A system for separating an image signal into a set of image planes in accordance with a control signal, the method comprising the operations of:

(a) means for sub-sampling an image signal by a programmable amount;

(b) means for receiving the control signal and producing a selector signal, via a selector module;

(c) means for receiving the selector signal and producing a decision signal, via an edge processing module; and

(d) means for receiving the sub-sampled image signal and the decision signal, and outputting a foreground signal and a background signal, via a foreground/background separation module, a representation of the current pixel of the image signal being included in at least one of the foreground signal and the background signal in accordance with the decision signal.

11. The method of Claim 10 wherein operation (c) further comprises:

means for receiving the foreground signal and the background signal;

means for filling undefined pixels in the foreground and background signals with values computed so as to substantially prevent artifacts and to facilitate good compression ratio, using a cleanup module; and

means for outputting a final foreground signal and a final background signal.

12. The system of Claim 12 wherein the operation of filling comprises:

means for extending content of defined pixels in each of the foreground and background signals to neighboring undefined pixels by filling neighboring undefined pixels with diluted foreground and background values, respectively, using a dilate module;

means for averaging non-zero content of the diluted foreground and background values over minimum coded unit blocks and outputting averaged block values, using a block average module; and

means for filling any remaining undefined pixels with the averaged block values, using a fill module.